

Test Point A3

Date: 95 July 28 Address of Location: 10723 Bristol Cone, Mint Hill
 Tap Location: Fibre/Buried Trunk Cascade: 1 Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -47.8 dBm
 Impairment Rating: 4.5 Comments: -
 Direct Inband Response: 0.8 dB P-V Delay: 70 ns

2. NTSC Through House-in-a-Box: Level: -55.7 dBm HIAB Loss: 7.9 dB
 Impairment Rating: 3 Comments: -
 HIAB Inband Response: n/a dB P-V Delay: n/a ns

3. NTSC Carrier levels (Direct):
 Lower Visual: -47.3 dBm Lower Aural: -68.2 dBm Ratio: 20.9 dB
 Test Visual: -47.7 dBm Test Aural: -70 dBm Ratio: 22.3 dB
 Upper Visual: - dBm Upper Aural: - dBm Ratio: - dB

4. NTSC Carrier Level: -14.4 dBm (after amplifier and filter)
 Highest Inband Spurious: 74.4 dBm @ 466.5 MHz
 CTB Level: -69.6 dBm
 Carrier-to-Noise: 43.6 dB (6 MHz bandwidth)
 Total System Response: 2 dB Peak-to-Valley Tilt across system: 5 dB

5. Direct Connection: HDTV Received Power: -53.8 dBm
 HDTV BER: 0 0
 Visual Impairment Comments: No trans. errors - flashing
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -22.5 dBm Noise Power: -60.1 dBm S/N₁: 37.6 dB

 BER with noise added to reach threshold: 1.50E-06 1.25E-06 1.53E-06
 HDTV Signal (amplified): -22.5 dBm Noise Power: -51.4 dBm S/N₂: 28.9 dB

 Margin S/N₁ - S/N₂ : 8.7 dB

6. Signal through House-in-a-Box: HDTV Received Power: -61.9 dBm
 HDTV BER: 0 0 0
 Visual Comments: No trans. errors
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -31.4 dBm Noise Power: -62.5 dBm S/N₁: 31.1 dB

 BER with noise added to reach threshold: 1.65E-06 1.91E-06 1.87E-06
 HDTV Signal (amplified): 31.4 dBm Noise Power: -59.7 dBm
 S/N₂: 28.3 dB

 Margin S/N₁ - S/N₂ : 2.8 dB

Test Point A4

Date: 95 July 28 Address of Location: 13800 Maple Hollow, Mint Hill
 Tap Location: Fibre/Buried Trunk Cascade: 1 Line Extender Cascade: 3

Field Test Results

1. NTSC Direct: Received Signal Level: -41 dBm
 Impairment Rating: 4 Comments: -
 Direct Inband Response: 0.9 dB P-V Delay: 44 ns
2. NTSC Through House-in-a-Box: Level: -49.1 dBm HIAB Loss: 8.1 dB
 Impairment Rating: 3.5 Comments: -
 HIAB Inband Response: 1.2 dB P-V Delay: 52 ns
3. NTSC Carrier levels (Direct):
 Lower Visual: -39.3 dBm Lower Aural: -61.4 dBm Ratio: 22.1 dB
 Test Visual: -40.9 dBm Test Aural: -63.3 dBm Ratio: 22.4 dB
 Upper Visual: - dBm Upper Aural: - dBm Ratio: - dB
4. NTSC Carrier Level: -9.8 dBm (after amplifier and filter)
 Highest Inband Spurious: -74.9 dBm @ 463.23 MHz
 CTB Level: -68.5 dBm
 Carrier-to-Noise: 45.2 dB (6 MHz bandwidth)
 Total System Response: 5 dB Peak-to-Valley Tilt across system: 0 dB
5. Direct Connection: HDTV Received Power: -46.9 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors - flashing
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -13.8 dBm Noise Power: -53.3 dBm S/N₁: 39.5 dB

 BER with noise added to reach threshold: 8.70E-07 8.40E-07 1.89E-06
 HDTV Signal (amplified): -13.8 dBm Noise Power: -42.1 dBm S/N₂: 28.3 dB

 Margin S/N₁ - S/N₂ : 11.2 dB
6. Signal through House-in-a-Box: HDTV Received Power: -55.3 dBm
 HDTV BER: 0 0 0
 Visual Comments: No trans. errors - flashing
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -13.9 dBm Noise Power: -52.7 dBm S/N₁: 38.8 dB

 BER with noise added to reach threshold: 1.76E-06 1.83E-06 1.75E-06
 HDTV Signal (amplified): -13.9 dBm Noise Power: -42.8 dBm
 S/N₂: 28.9 dB

 Margin S/N₁ - S/N₂ : 9.9 dB

Test Point A5

Date: 95 July 28 Address of Location: 13709 Jonathan's Rd., Mint Hill
 Tap Location: Fibre/Buried Trunk Cascade: 1 Line Extender Cascade: 3

Field Test Results

1. NTSC Direct: Received Signal Level: -40.7 dBm
 Impairment Rating: 4 Comments: -
 Direct Inband Response: 2 dB P-V Delay: 110 ns

2. NTSC Through House-in-a-Box: Level: -48.9 dBm HIAB Loss: 8.2 dB
 Impairment Rating: 3.5 Comments: -
 HIAB Inband Response: 2 dB P-V Delay: 105 ns

3. NTSC Carrier levels (Direct):
 Lower Visual: -40.8 dBm Lower Aural: -60.7 dBm Ratio: 19.9 dB
 Test Visual: -40.8 dBm Test Aural: -63.5 dBm Ratio: 22.7 dB
 Upper Visual: - dBm Upper Aural: - dBm Ratio: - dB

4. NTSC Carrier Level: -7.6 dBm (after amplifier and filter)
 Highest Inband Spurious: - dBm @ - MHz
 CTB Level: -70.5 dBm
 Carrier-to-Noise: 35 dB (6 MHz bandwidth)
 Total System Response: 2 dB Peak-to-Valley Tilt across system: -6 dB

5. Direct Connection: HDTV Received Power: -46.8 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -15.9 dBm Noise Power: -56.2 dBm S/N₁: 40.3 dB

 BER with noise added to reach threshold: 1.98E-06 1.51E-06 1.95E-06
 HDTV Signal (amplified): -15.9 dBm Noise Power: -44.3 dBm S/N₂: 28.4 dB

 Margin S/N₁ - S/N₂ : 11.9 dB

6. Signal through House-in-a-Box: HDTV Received Power: -55.3 dBm
 HDTV BER: 0 0 0
 Visual Comments: No trans. errors - flashing
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -24.8 dBm Noise Power: -61.2 dBm S/N₁: 36.4 dB

 BER with noise added to reach threshold: 1.92E-06 2.28E-06 2.11E-06
 HDTV Signal (amplified): -24.8 dBm Noise Power: -53.6 dBm
 S/N₂: 28.8 dB

 Margin S/N₁ - S/N₂ : 7.6 dB

APPENDIX 2**Time Warner Cable of Kannapolis****GENERAL SYSTEM INFORMATION**

Total Subscribers: 32,500	Miles of Plant: 680	Percent Underground: 10
System Bandwidth: 50 - 400 MHz	Frequency Plan: IRC	Highest Freq. Used: 339 MHz
Test Channel: 25 (228 - 234 MHz)	Lower Channel: clear	Upper Channel: clear
Trunk Amp Mfr.: Jerrold	Operating Carrier Levels: 37/33 dBmV.	
Line Extender Mfr.: Jerrold	Operating Carrier Levels: 46/40 dBmV.	
Trunk Cable: .750"	Cable Manufacturer: Trilogy	Age: 1 - 15 years
Distribution Cable: .500"	Cable Manufacturer: Trilogy	Age: 1 - 15 years
Cable Tap & Passives Mfr.: Jerrold		
Channel 53 HDTV Rx Level: -48 dBm (~29 dB of Margin (preamplifier used due to low gain in receiver.))		
Rx Site: 15.6 miles from transmitter		
Tests Performed by: G. Hovland - CableLabs, N. Coppisetti - Philips, and Rob Densler - Zenith		
Director: Brian James - CableLabs		

Test Point B1

Date: 95 July 31 Address of Location: Headend, Kannapolis
 Tap Location: HE Test Point Trunk Cascade: 0 Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -37.4 dBm
 Impairment Rating: 5 Comments: -
 Direct Inband Response: 0.5 dB P-V Delay: 314 ns

2. NTSC Through House-in-a-Box: Level: -41 dBm HIAB Loss: 3.6 dB
 Impairment Rating: 5 Comments: -
 HIAB Inband Response: 1 dB P-V Delay: 300 ns

3. NTSC Carrier levels (Direct):
 Lower Visual: -37.8 dBm Lower Aural: -54.6 dBm Ratio: 16.8 dB
 Test Visual: -37.4 dBm Test Aural: -60.5 dBm Ratio: 23.1 dB
 Upper Visual: -37.9 dBm Upper Aural: -55 dBm Ratio: 17.1 dB

4. NTSC Carrier Level: -5.7 dBm (after amplifier and filter)
 Highest Inband Spurious: >-76 dBm @ - MHz
 CTB Level: >-76 dBm
 Carrier-to-Noise: 51.9 dB (6 MHz bandwidth)
 Total System Response: 0 dB Peak-to-Valley Tilt across system: 2 dB

5. Direct Connection: HDTV Received Power: -43.8 dBm
 HDTV BER: - -
 Visual Impairment Comments: No trans. errors
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -15.8 dBm Noise Power: -57 dBm S/N₁: 41.2 dB

 BER with noise added to reach threshold: - - -
 HDTV Signal (amplified): -15.8 dBm Noise Power: -44 dBm S/N₂: 28.2 dB

 Margin S/N₁ - S/N₂ : 13 dB

6. Signal through House-in-a-Box: HDTV Received Power: -47.3 dBm
 HDTV BER: - - -
 Visual Comments: No trans. errors - flashing
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -19.2 dBm Noise Power: -59.4 dBm S/N₁: 40.2 dB

 BER with noise added to reach threshold: - - -
 HDTV Signal (amplified): -19.2 dBm Noise Power: -47.5 dBm
 S/N₂: 28.3 dB

 Margin S/N₁ - S/N₂ : 11.9 dB

Test Point B2

Date: 95 July 31
Tap Location: Aerial

Address of Location: Davidson Dr. & Moorsville RD., Kannapolis
Trunk Cascade: 36 Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -37.8 dBm
Impairment Rating: 4 Comments: -
Direct Inband Response: 1 dB P-V Delay: 300 ns
2. NTSC Through House-in-a-Box: Level: -41.4 dBm HIAB Loss: 3.6 dB
Impairment Rating: 4 Comments: -
HIAB Inband Response: 1 dB P-V Delay: 300 ns
3. NTSC Carrier levels (Direct):
Lower Visual: -37.9 dBm Lower Aural: -54.8 dBm Ratio: 16.9 dB
Test Visual: -37 dBm Test Aural: -60.4 dBm Ratio: 23.4 dB
Upper Visual: -37.8 dBm Upper Aural: -54.4 dBm Ratio: 16.6 dB
4. NTSC Carrier Level: -3.5 dBm (after amplifier and filter)
Highest Inband Spurious: >-57 dBm @ MHz
CTB Level: >-57 dBm
Carrier-to-Noise: 50.9 dB (6 MHz bandwidth)
Total System Response: 5 dB Peak-to-Valley Tilt across system: -2 dB
5. Direct Connection: HDTV Received Power: -43.8 dBm
HDTV BER: - - -
Visual Impairment Comments: No trans. errors
Aural Impairment Comments: No trans. errors
HDTV Signal (amplified): -16.6 dBm Noise Power: -54 dBm S/N₁: 37.4 dB

BER with noise added to reach threshold: - - -
HDTV Signal (amplified): -16.6 dBm Noise Power: -45 dBm S/N₂: 28.4 dB

Margin S/N₁ - S/N₂ : 9 dB
6. Signal through House-in-a-Box: HDTV Received Power: -47.1 dBm
HDTV BER: - - -
Visual Comments: No trans. errors - flashing
Aural Comments: No trans. errors
HDTV Signal (amplified): -20.1 dBm Noise Power: -56.5 dBm S/N₁: 36.4 dB

BER with noise added to reach threshold: - - -
HDTV Signal (amplified): -20.1 dBm Noise Power: -48.4 dBm
S/N₂: 28.3 dB

Margin S/N₁ - S/N₂ : 8.1 dB

Test Point B3

Date: 95 July 31
Tap Location: Aerial

Address of Location: 17405 Shilo Church rd., Kannapolis
Trunk Cascade: 34 Line Extender Cascade: 1

Field Test Results

1. NTSC Direct: Received Signal Level: -32.4 dBm
Impairment Rating: 4.5 Comments: -
Direct Inband Response: 1 dB P-V Delay: 300 ns
2. NTSC Through House-in-a-Box: Level: -36.2 dBm HIAB Loss: 3.8 dB
Impairment Rating: 4 Comments: -
HIAB Inband Response: 1 dB P-V Delay: 300 ns
3. NTSC Carrier levels (Direct):
Lower Visual: -33.1 dBm Lower Aural: -50 dBm Ratio: 16.9 dB
Test Visual: -32.3 dBm Test Aural: -55.2 dBm Ratio: 22.9 dB
Upper Visual: -32.4 dBm Upper Aural: -48.9 dBm Ratio: 16.5 dB
4. NTSC Carrier Level: -8.3 dBm (after amplifier and filter)
Highest Inband Spurious: >-71 dBm @ - MHz
CTB Level: -60.5 dBm
Carrier-to-Noise: 42.2 dB (6 MHz bandwidth)
Total System Response: 17 dB Peak-to-Valley Tilt across system: 10 dB
5. Direct Connection: HDTV Received Power: -38.6 dBm
HDTV BER: - -
Visual Impairment Comments: No trans. errors
Aural Impairment Comments: No trans. errors
HDTV Signal (amplified): -16.6 dBm Noise Power: -51.6 dBm S/N₁: 35 dB

BER with noise added to reach threshold: - -
HDTV Signal (amplified): -16.6 dBm Noise Power: -44.7 dBm S/N₂: 28.1 dB

Margin S/N₁ - S/N₂ : 6.9 dB
6. Signal through House-in-a-Box: HDTV Received Power: -42.1 dBm
HDTV BER: - -
Visual Comments: No trans. errors
Aural Comments: No trans. errors
HDTV Signal (amplified): -20 dBm Noise Power: -55.9 dBm S/N₁: 35.9 dB

BER with noise added to reach threshold: - -
HDTV Signal (amplified): -20 dBm Noise Power: -48.2 dBm S/N₂: 28.2 dB

Margin S/N₁ - S/N₂ : 7.7 dB

Test Point B4

Date: 95 July 31

Address of Location: Huntley Place, Roberta Farms Sub., Concord,

Kannapolis

Tap Location: Fibre/Buried Trunk Cascade: 25

Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -35.1 dBm
 Impairment Rating: 4.5 Comments: -
 Direct Inband Response: 1 dB P-V Delay: 250 ns
2. NTSC Through House-in-a-Box: Level: -38.7 dBm HIAB Loss: 3.6 dB
 Impairment Rating: 4.5 Comments: -
 HIAB Inband Response: 1 2 dB P-V Delay: 300 ns
3. NTSC Carrier levels (Direct):
 Lower Visual: -34.2 dBm Lower Aural: -52.2 dBm Ratio: 18 dB
 Test Visual: -35.2 dBm Test Aural: -58.1 dBm Ratio: 22.9 dB
 Upper Visual: -35 dBm Upper Aural: -52.6 dBm Ratio: 17.6 dB
4. NTSC Carrier Level: -11 dBm (after amplifier and filter)
 Highest Inband Spurious: >-67 dBm @ - MHz
 CTB Level: -64.5 dBm
 Carrier-to-Noise: 41.3 dB (6 MHz bandwidth)
 Total System Response: 2 dB Peak-to-Valley Tilt across system: 7 dB
5. Direct Connection: HDTV Received Power: -41 dBm
 HDTV BER: - -
 Visual Impairment Comments: No trans. errors
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -15.9 dBm Noise Power: -53.1 dBm S/N₁: 37.2 dB

 BER with noise added to reach threshold: - -
 HDTV Signal (amplified): -15.9 dBm Noise Power: -44.1 dBm S/N₂: 28.2 dB

 Margin S/N₁ - S/N₂ : 9 dB
6. Signal through House-in-a-Box: HDTV Received Power: -44.3 dBm
 HDTV BER: - -
 Visual Comments: No trans. errors
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -19.2 dBm Noise Power: -56.2 dBm S/N₁: 37 dB

 BER with noise added to reach threshold: - -
 HDTV Signal (amplified): -19.2 dBm Noise Power: -47.5 dBm
 S/N₂: 28.3 dB

 Margin S/N₁ - S/N₂ : 8.7 dB

Test Point B5

Date: 95 Aug 1
Tap Location: Aerial

Address of Location: 1775 Hahn Rd. , Mt. pleasant, Kannapolis
Trunk Cascade: 34 Line Extender Cascade: 1

Field Test Results

1. NTSC Direct: Received Signal Level: -32.3 dBm
Impairment Rating: 4 Comments: -
Direct Inband Response: 0.7 dB P-V Delay: 100 ns
2. NTSC Through House-in-a-Box: Level: -36.2 dBm HIAB Loss: 3.9 dB
Impairment Rating: 4 Comments: -
HIAB Inband Response: 1 dB P-V Delay: 100 ns
3. NTSC Carrier levels (Direct):
Lower Visual: -32.6 dBm Lower Aural: -49.7 dBm Ratio: 17.1 dB
Test Visual: -32.5 dBm Test Aural: -55.8 dBm Ratio: 23.3 dB
Upper Visual: -33 dBm Upper Aural: -49 dBm Ratio: 16 dB
4. NTSC Carrier Level: 1.3 dBm (after amplifier and filter)
Highest Inband Spurious: -60.6 dBm @ 230.7 MHz
CTB Level: -52.2 dBm
Carrier-to-Noise: 42.2 dB (6 MHz bandwidth)
Total System Response: 6 dB Peak-to-Valley Tilt across system: 7 dB
5. Direct Connection: HDTV Received Power: -38.2 dBm
HDTV BER: 0 0 0.00E+00
Visual Impairment Comments: No trans. errors - flashing
Aural Impairment Comments: No trans. errors
HDTV Signal (amplified): -16.6 dBm Noise Power: -52.7 dBm S/N₁: 36.1 dB

BER with noise added to reach threshold: 2.21E-06 2.68E-06 2.13E-06
HDTV Signal (amplified): -16.6 dBm Noise Power: -45.1 dBm S/N₂: 28.5 dB

Margin S/N₁ - S/N₂ : 7.6 dB
6. Signal through House-in-a-Box: HDTV Received Power: -41.9 dBm
HDTV BER: 0 0 0
Visual Comments: No trans. errors - flashing
Aural Comments: No trans. errors
HDTV Signal (amplified): -19.9 dBm Noise Power: -55.4 dBm S/N₁: 35.5 dB

BER with noise added to reach threshold: 2.70E-06 2.90E-06 2.90E-06
HDTV Signal (amplified): -19.9 dBm Noise Power: -48.7 dBm
S/N₂: 28.8 dB

Margin S/N₁ - S/N₂ : 6.7 dB

Test Point B6

Date: 95 Aug 1
Tap Location: Aerial

Address or Location: 5800 Shore View, Kannapolis
Trunk Cascade: 32 Line Extender Cascade: 1

Field Test Results

1. NTSC Direct: Received Signal Level: -23.4 dBm
Impairment Rating: 3.5 Comments: -
Direct Inband Response: 1.6 dB P-V Delay: 250 ns
2. NTSC Through House-in-a-Box: Level: -27.1 dBm HIAB Loss: 3.7 dB
Impairment Rating: 3.5 Comments: -
HIAB Inband Response: 2.2 dB P-V Delay: 250 ns
3. NTSC Carrier levels (Direct):
Lower Visual: -23.3 dBm Lower Aural: -41.4 dBm Ratio: 18.1 dB
Test Visual: -23.5 dBm Test Aural: -47.2 dBm Ratio: 23.7 dB
Upper Visual: -25.1 dBm Upper Aural: -41.8 dBm Ratio: 16.7 dB
4. NTSC Carrier Level: -1.8 dBm (after amplifier and filter)
Highest Inband Spurious: -61.8 dBm @ 230.74 MHz
CTB Level: -54.4 dBm
Carrier-to-Noise: 41.7 dB (6 MHz bandwidth)
Total System Response: 15 dB Peak-to-Valley Tilt across system: 5 dB
5. Direct Connection: HDTV Received Power: -30.3 dBm
HDTV BER: 0 0 0
Visual Impairment Comments: No trans. errors - flashing
Aural Impairment Comments: No trans. errors
HDTV Signal (amplified): -18.1 dBm Noise Power: -53.1 dBm S/N₁: 35 dB

BER with noise added to reach threshold: 2.40E-06 1.59E-06 2.05E-06
HDTV Signal (amplified): -18.1 dBm Noise Power: -46.8 dBm S/N₂: 28.7 dB

Margin S/N₁ - S/N₂ : 6.3 dB
6. Signal through House-in-a-Box: HDTV Received Power: -33.7 dBm
HDTV BER: 0 0 0
Visual Comments: No trans. errors
Aural Comments: No trans. errors
HDTV Signal (amplified): -21.8 dBm Noise Power: -56.9 dBm S/N₁: 35.1 dB

BER with noise added to reach threshold: 1.81E-06 1.49E-06 1.71E-06
HDTV Signal (amplified): -21.8 dBm Noise Power: -50.5 dBm
S/N₂: 28.7 dB

Margin S/N₁ - S/N₂ : 6.4 dB

APPENDIX 3**Time Warner Cable of Albermarle****General System Information**

Total Subscribers: 16 000	Miles of Plant: 700	Percent Underground: 5
System Bandwidth: 50-400 MHz	Frequency Plan: Std	Highest Freq. Used: 403 MHz
Test Channel: 51 (384 - 390 MHz)	Lower Channel: Clear	Upper Channel: Clear
Trunk Amp Mfr.: Jerrold	Operating Carrier Levels: 32 dBmV.	
Line Extender Mfr.: Jerrold	Operating Carrier Levels: 47/38 dBmV.	
Trunk Cable: .750"	Cable Manufacturer: Trilogy	Age: 1 - 15 years
Distribution Cable: .500"	Cable Manufacturer: Trilogy	Age: 1 - 15 years
Cable Tap & Passives Mfr.: Jerrold		
Fibre: AM Link		
Channel 53 HDTV Rx Level: -48 dBm (~34 dB of margin)		
Rx Site: 24.2 miles from transmitter		
Tests Performed By: G. Hovland - CableLabs, N. Coppisetti - Philips, and Rob Densler - Zenith		
Director: Brian James - CableLabs		

Test Point C1

Date: 95 Aug 2

Address of Location: Headend, Albermarle

Tap Location: HE Test Point Trunk Cascade: 0

Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -35.4 dBm
 Impairment Rating: 4.5 Comments: -
 Direct Inband Response: 0.2 dB P-V Delay: 100 ns
2. NTSC Through House-in-a-Box: Level: -40.8 dBm HIAB Loss: 5.4 dB
 Impairment Rating: 4.5 Comments: -
 HIAB Inband Response: 1 dB P-V Delay: 150 ns
3. NTSC Carrier levels (Direct):
 Lower Visual: -39 dBm Lower Aural: -60.4 dBm Ratio: 21.4 dB
 Test Visual: -35.4 dBm Test Aural: -59.9 dBm Ratio: 24.5 dB
 Upper Visual: -39.4 dBm Upper Aural: -62.7 dBm Ratio: 23.3 dB
4. NTSC Carrier Level: -8.6 dBm (after amplifier and filter)
 Highest Inband Spurious: >-77.4 dBm @ - MHz
 CTB Level: >-77.4 dBm
 Carrier-to-Noise: 52.8 dB (6 MHz bandwidth)
 Total System Response: 0 dB Peak-to-Valley Tilt across system: 5 dB
5. Direct Connection: HDTV Received Power: -41.6 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors - flashing
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -14.7 dBm Noise Power: -61.6 dBm S/N₁: 46.9 dB

 BER with noise added to reach threshold: 1.15E-06 1.35E-06 2.21E-06
 HDTV Signal (amplified): -14.7 dBm Noise Power: -43.4 dBm S/N₂: 28.7 dB

 Margin S/N₁ - S/N₂ : 18.2 dB
6. Signal through House-in-a-Box: HDTV Received Power: -46.7 dBm
 HDTV BER: 0 0 0
 Visual Comments: No trans. errors - flashing
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -20.2 dBm Noise Power: -60.9 dBm S/N₁: 40.7 dB

 BER with noise added to reach threshold: 1.33E-04 1.60E-06 1.58E-06
 HDTV Signal (amplified): -20.2 dBm Noise Power: -49 dBm
 S/N₂: 28.8 dB

 Margin S/N₁ - S/N₂ : 11.9 dB

Test Point C2

Date: 95 Aug 2 Address of Location: 42055 Gurley Rd, Albermarle
 Tap Location: Fibre /Aerial Trunk Cascade: 9 Line Extender Cascade: 2

Field Test Results

1. NTSC Direct: Received Signal Level: -39.3 dBm
 Impairment Rating: 4 Comments: -
 Direct Inband Response: 3.2 dB P-V Delay: 300 ns

2. NTSC Through House-in-a-Box: Level: -44.8 dBm HIAB Loss: 5.5 dB
 Impairment Rating: 3.5 Comments: -
 HIAB Inband Response: 2.5 dB P-V Delay: 250 ns

3. NTSC Carrier levels (Direct):
 Lower Visual: -43.5 dBm Lower Aural: -65.3 dBm Ratio: 21.8 dB
 Test Visual: -39.2 dBm Test Aural: -62.5 dBm Ratio: 23.3 dB
 Upper Visual: -42.6 dBm Upper Aural: -66.7 dBm Ratio: 24.1 dB

4. NTSC Carrier Level: -12.5 dBm (after amplifier and filter)
 Highest Inband Spurious: -71.8 dBm @ 387.4 MHz
 CTB Level: -75.2 dBm
 Carrier-to-Noise: 47.8 dB (6 MHz bandwidth)
 Total System Response 7 dB Peak-to-Valley Tilt across system: 0 dB

5. Direct Connection: HDTV Received Power: -45.7 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors - flashing
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -14 dBm Noise Power: -55.1 dBm S/N₁: 41.1 dB

 BER with noise added to reach threshold: 1.93E-06 2.51E-06 1.89E-06
 HDTV Signal (amplified): -14 dBm Noise Power: -43.1 dBm S/N₂: 29.1 dB

 Margin S/N₁ - S/N₂ : 12 dB

6. Signal through House-in-a-Box: HDTV Received Power: -50.8 dBm
 HDTV BER: 0 0 0
 Visual Comments: No trans. errors
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -19.8 dBm Noise Power: -54.6 dBm S/N₁: 34.8 dB

 BER with noise added to reach threshold: 1.06E-06 1.88E-06 2.20E-06
 HDTV Signal (amplified): -19.8 dBm Noise Power: -49 dBm
 S/N₂: 29.2 dB

 Margin S/N₁ - S/N₂ : 5.6 dB

Test Point C3

Date: 95 Aug 2 Address of Location: 1720 Valley Dr, Badin
 Tap Location: Fibre /Aerial Trunk Cascade: 12 Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -41 dBm
 Impairment Rating: 4 Comments: -
 Direct Inband Response: 0.5 dB P-V Delay: 200 ns
2. NTSC Through House-in-a-Box: Level: -46.6 dBm HIAB Loss: 5.6 dB
 Impairment Rating: 3.5 Comments: -
 HIAB Inband Response: 1.2 dB P-V Delay: 200 ns
3. NTSC Carrier levels (Direct):
 Lower Visual: -44.8 dBm Lower Aural: -66.7 dBm Ratio: 21.9 dB
 Test Visual: -41.1 dBm Test Aural: -65.9 dBm Ratio: 24.8 dB
 Upper Visual: -45.5 dBm Upper Aural: -68.8 dBm Ratio: 23.3 dB
4. NTSC Carrier Level: -9.6 dBm (after amplifier and filter)
 Highest Inband Spurious: -69 dBm @ 386.4 MHz
 CTB Level: >-75 dBm
 Carrier-to-Noise: 45.8 dB (6 MHz bandwidth)
 Total System Response: 7 dB Peak-to-Valley Tilt across system: 2 dB
5. Direct Connection: HDTV Received Power: -46.6 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors - flashing
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -12.8 dBm Noise Power: -53.5 dBm S/N₁: 40.7 dB

 BER with noise added to reach threshold: 1.75E-06 9.95E-07 4.80E-07
 HDTV Signal (amplified): -12.8 dBm Noise Power: -42.3 dBm S/N₂: 29.5 dB

 Margin S/N₁ - S/N₂ : 11.2 dB
6. Signal through House-in-a-Box: HDTV Received Power: -50.2 dBm
 HDTV BER: 0 0 0
 Visual Comments: No trans. errors - flashing
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -17.9 dBm Noise Power: -50 dBm S/N₁: 32.1 dB

 BER with noise added to reach threshold: 8.58E-07 6.66E-07 5.00E-07
 HDTV Signal (amplified): -17.9 dBm Noise Power: -47.5 dBm
 S/N₂: 29.6 dB

 Margin S/N₁ - S/N₂ : 2.5 dB

Test Point C4

Date: 95 Aug. 3 Address of Location: Rte 3 Hwy 1546, Wadeville
Tap Location: Fibre /Aerial Trunk Cascade: 24 Line Extender Cascade: 2

Field Test Results

1. NTSC Direct: Received Signal Level: -42.3 dBm
Impairment Rating: 3 Comments: beat
Direct Inband Response: 1.5 dB P-V Delay: 150 ns
2. NTSC Through House-in-a-Box: Level: -47.4 dBm HIAB Loss: 5.1 dB
Impairment Rating: 3 Comments: beat
HIAB Inband Response: 0.9 dB P-V Delay: 150 ns
3. NTSC Carrier levels (Direct):
Lower Visual: -42.8 dBm Lower Aural: -60 dBm Ratio: 17.2 dB
Test Visual: -42 dBm Test Aural: -59.4 dBm Ratio: 17.4 dB
Upper Visual: -43.3 dBm Upper Aural: -60.5 dBm Ratio: 17.2 dB
4. NTSC Carrier Level: -9.5 dBm (after amplifier and filter)
Highest Inband Spurious: -64.2 dBm @ 387.43 MHz
CTB Level: >-65.9 dBm
Carrier-to-Noise: 37 dB (6 MHz bandwidth)
Total System Response 13 dB Peak-to-Valley Tilt across system: 2 dB
5. Direct Connection: HDTV Received Power: -48.7 dBm
HDTV BER: 0 0 0
Visual Impairment Comments: No trans. errors - flashing
Aural Impairment Comments: No trans. errors
HDTV Signal (amplified): -17.6 dBm Noise Power: -50 dBm S/N₁: 32.4 dB

BER with noise added to reach threshold: 1.30E-06 3.90E-08 3.60E-08
HDTV Signal (amplified): -17.6 dBm Noise Power: -47.6 dBm S/N₂: 30 dB

Margin S/N₁ - S/N₂ : 2.4 dB
6. Signal through House-in-a-Box: HDTV Received Power: -53.9 dBm
HDTV BER: 0 0 1.20E-07
Visual Comments: No trans. errors - flashing
Aural Comments: No trans. errors
HDTV Signal (amplified): -23.5 dBm Noise Power: -53.9 dBm S/N₁: 30.4 dB

BER with noise added to reach threshold: 1.60E-04 2.30E-04 4.95E-05
HDTV Signal (amplified): -23.5 dBm Noise Power: -53.9 dBm
S/N₂: 30.4 dB

Margin S/N₁ - S/N₂ : 0 dB

Test Point C5

Date: 95 Aug 3 Address of Location: 33835 Rocky River Springs Rd., Aquadale
 Tap Location: Fibre /Aerial Trunk Cascade: 12 Line Extender Cascade: 2

Field Test Results

1. NTSC Direct: Received Signal Level: -42.6 dBm
 Impairment Rating: 2.5 Comments: beat
 Direct Inband Response: 1.5 dB P-V Delay: 100 ns
2. NTSC Through House-in-a-Box: Level: -47.9 dBm HIAB Loss: 5.3 dB
 Impairment Rating: 2 Comments: multiple beats
 HIAB Inband Response: 2 dB P-V Delay: 100 ns
3. NTSC Carrier levels (Direct):
 Lower Visual: -40.9 dBm Lower Aural: -58.5 dBm Ratio: 17.6 dB
 Test Visual: -42.6 dBm Test Aural: -60.5 dBm Ratio: 17.9 dB
 Upper Visual: -45.5 dBm Upper Aural: -64.2 dBm Ratio: 18.7 dB
4. NTSC Carrier Level: -10.4 dBm (after amplifier and filter)
 Highest Inband Spurious: -65.7 dBm @ 387.4 MHz
 CTB Level: -65.2 dBm
 Carrier-to-Noise: 42 dB (6 MHz bandwidth)
 Total System Response: 5 dB Peak-to-Valley Tilt across system: 12 dB
5. Direct Connection: HDTV Received Power: -49.9 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -17.1 dBm Noise Power: -52.2 dBm S/N₁: 35.1 dB

 BER with noise added to reach threshold: 8.76E-07 9.70E-07 8.79E-07
 HDTV Signal (amplified): -17.1 dBm Noise Power: -47.4 dBm S/N₂: 30.3 dB

 Margin S/N₁ - S/N₂ : 4.8 dB
6. Signal through House-in-a-Box: HDTV Received Power: -55.5 dBm
 HDTV BER: 1.49E-03 3.28E-03 2.27E-03
 Visual Comments: No trans. errors
 Aural Comments: no audio
 HDTV Signal (amplified): -22.6 dBm Noise Power: -52.3 dBm S/N₁: 29.7 dB

 BER with noise added to reach threshold: - - -
 HDTV Signal (amplified): -22.6 dBm Noise Power: -52.3 dBm
 S/N₂: 29.7 dB

 Margin S/N₁ - S/N₂ : 0 dB

Test Point C6

Date: 95 Aug. 3 Address of Location: 7300 Flowestore Rd, Midland
 Tap Location: Fibre /Aerial Trunk Cascade: 41 Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -38.7 dBm
 Impairment Rating: 4 Comments: light beat
 Direct Inband Response: 0.8 dB P-V Delay: 75 ns

2. NTSC Through House-in-a-Box: Level: -44.3 dBm HIAB Loss: 5.6 dB
 Impairment Rating: 4 Comments: beat
 HIAB Inband Response: 1.4 dB P-V Delay: 80 ns

3. NTSC Carrier levels (Direct):
 Lower Visual: -36.9 dBm Lower Aural: -54.9 dBm Ratio: 18 dB
 Test Visual: -38.7 dBm Test Aural: -56.4 dBm Ratio: 17.7 dB
 Upper Visual: -41.5 dBm Upper Aural: -59.2 dBm Ratio: 17.7 dB

4. NTSC Carrier Level: -6.5 dBm (after amplifier and filter)
 Highest Inband Spurious: -62.4 dBm @ 386.4 MHz
 CTB Level: -63.4 dBm
 Carrier-to-Noise: 41.9 dB (6 MHz bandwidth)
 Total System Response: 15 dB Peak-to-Valley Tilt across system: 11 dB

5. Direct Connection: HDTV Received Power: -45 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors - flashing
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -18.2 dBm Noise Power: -53.6 dBm S/N₁: 35.4 dB

 BER with noise added to reach threshold: 1.30E-06 4.69E-07 7.36E-07
 HDTV Signal (amplified): -18.2 dBm Noise Power: -47.6 dBm S/N₂: 29.4 dB

 Margin S/N₁ - S/N₂ : 6 dB

6. Signal through House-in-a-Box: HDTV Received Power: -51 dBm
 HDTV BER: 0 0 0
 Visual Comments: No trans. errors - flashing
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -24.1 dBm Noise Power: -54.8 dBm S/N₁: 30.7 dB

 BER with noise added to reach threshold: 8.35E-07 1.40E-06 1.52E-06
 HDTV Signal (amplified): -24.1 dBm Noise Power: -53.1 dBm
 S/N₂: 29 dB

 Margin S/N₁ - S/N₂ : 1.7 dB

APPENDIX 4**Time Warner Cable of Rockingham/Hamlet****GENERAL SYSTEM INFORMATION**

Total Subscribers: 11,700	Miles of Plant: 411	Percent Underground: 2
System Bandwidth: 50 - 350 MHz	Frequency Plan: STD	Highest Frequency Used: 325 MHz
Test Channel: 43 (336 - 342 MHz)	Lower Channel: Clear	Upper Channel: Clear
Trunk Amp Mfr.: Magnavox	Operating Carrier Levels: --	
Line Extender Mfr.: Magnavox	Operating Carrier Levels: --	
Trunk Cable: .750"	Cable Manufacturer: Comm/Scope	Age: 10 years
Distribution Cable: .500"	Cable Manufacturer: Comm/Scope	Age: 10 years
Cable Tap & Passives Mfr.: assorted		
Channel 53 HDTV Rx Level: -31.5 dBm (~34 dB Margin, Preamplifier used)		
Rx Site: 58.5 miles from transmitter site		
Tests Performed by: G. Hovland - CableLabs, N. Coppisetti - Philips, and Rob Densler - Zenith		
Director: Brian James - CableLabs		

Test Point D1

Date: 95 Aug. 3 Address of Location: Headend, Rockingham
 Tap Location: HE Test Point Trunk Cascade: 0 Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -35.2 dBm
 Impairment Rating: 4 Comments: Repeater Radio beat
 Direct Inband Response: 1.2 dB P-V Delay: 50 ns

2. NTSC Through House-in-a-Box: Level: -40.8 dBm HIAB Loss: 5.6 dB
 Impairment Rating: 4 Comments: Repeater Radio beat
 HIAB Inband Response: 1 dB P-V Delay: 50 ns

3. NTSC Carrier levels (Direct):
 Lower Visual: -34.6 dBm Lower Aural: -51 dBm Ratio: 16.4 dB
 Test Visual: -35.3 dBm Test Aural: -52.8 dBm Ratio: 17.5 dB
 Upper Visual: -38 dBm Upper Aural: -54.8 dBm Ratio: 16.8 dB

4. NTSC Carrier Level: -7.6 dBm (after amplifier and filter)
 Highest Inband Spurious: -75.1 dBm @ 338.7 MHz
 CTB Level: 76.2 dBm
 Carrier-to-Noise: 45 dB (6 MHz bandwidth)
 Total System Response: 2 dB Peak-to-Valley Tilt across system: 0 dB

5. Direct Connection: HDTV Received Power: -41.9 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors - flashing
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified) -17.2 dBm Noise Power: -59.5 dBm S/N₁: 42.3 dB

 BER with noise added to reach threshold: 1.01E-06 8.45E-07 1.55E-06
 HDTV Signal (amplified) -17.2 dBm Noise Power: -47 dBm S/N₂: 29.8 dB

 Margin S/N₁ - S/N₂ : 12.5 dB

6. Signal through House-in-a-Box: HDTV Received Power: -47.5 dBm
 HDTV BER: 0 0 0
 Visual Comments: No trans. errors - flashing
 Aural Comments: No trans. errors
 HDTV Signal (amplified) -23.4 dBm Noise Power: -57.8 dBm S/N₁: 34.4 dB

 BER with noise added to reach threshold: 5.83E-07 1.58E-06 1.92E-06
 HDTV Signal (amplified) -23.4 dBm Noise Power: -52.2 dBm
 S/N₂: 28.8 dB

 Margin S/N₁ - S/N₂ : 5.6 dB

Test Point D2

Date: 95 Aug 4
Tap Location: Aerial

Address of Location: Hwy 74 & Tiny Ln, Rockingham
Trunk Cascade: 21 Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -44.7 dBm
Impairment Rating: 4 Comments: Intermittent beat
Direct Inband Response: 2.7 dB P-V Delay: 50 ns
2. NTSC Through House-in-a-Box: Level: -49.8 dBm HIAB Loss: 5.1 dB
Impairment Rating: 3.5 Comments: beat
HIAB Inband Response: 2.2 dB P-V Delay: 75 ns
3. NTSC Carrier levels (Direct):
Lower Visual: -43 dBm Lower Aural: -60.7 dBm Ratio: 17.7 dB
Test Visual: -44.7 dBm Test Aural: -65.1 dBm Ratio: 20.4 dB
Upper Visual: -51.2 dBm Upper Aural: -71.9 dBm Ratio: 20.7 dB
4. NTSC Carrier Level: -12.5 dBm (after amplifier and filter)
Highest Inband Spurious: >-75.1 dBm @ - MHz
CTB Level: -73.9 dBm
Carrier-to-Noise: 37.5 dB (6 MHz bandwidth)
Total System Response: 2.5 dB Peak-to-Valley Tilt across system: 1 dB
5. Direct Connection: HDTV Received Power: -51.9 dBm
HDTV BER: 0 0 0
Visual Impairment Comments: No trans. errors - flashing
Aural Impairment Comments: No trans. errors
HDTV Signal (amplified): -19.2 dBm Noise Power: -51.5 dBm S/N₁: 32.3 dB

BER with noise added to reach threshold: 2.91E-06 1.81E-06 1.61E-06
HDTV Signal (amplified): -19.2 dBm Noise Power: -49.3 dBm S/N₂: 30.1 dB

Margin S/N₁ - S/N₂ : 2.2 dB
6. Signal through House-in-a-Box: HDTV Received Power: -57 dBm
HDTV BER: 4.28E-07 1.15E-06 8.63E-07
Visual Comments: No trans. errors - flashing
Aural Comments: No trans. errors
HDTV Signal (amplified): -24.8 dBm Noise Power: -51 dBm S/N₁: 26.2 dB

BER with noise added to reach threshold: 2.92E-06 2.02E-06 2.14E-06
HDTV Signal (amplified): -24.8 dBm Noise Power: -50.4 dBm
S/N₂: 25.6 dB

Margin S/N₁ - S/N₂ : 0.6 dB

Test Point D3

Date: 95 Aug 4
Tap Location: Aerial

Address of Location: 120 Pecan Rd, Rockingham
Link Cascade: 25 Line Extender Cascade: 1

Field Test Results

1. NTSC Direct: Received Signal Level: -48 dBm
Impairment Rating: 3.5 Comments: beat
Direct Inband Response 2.5 dB P-V Delay: 90 ns
2. NTSC Through House-in-a-Box: Level: -43.4 dBm HIAB Loss: -4.6 dB
Impairment Rating: 3.5 Comments: beat
HIAB Inband Response 2.5 dB P-V Delay: 65 ns
3. NTSC Carrier levels (Direct):
Lower Visual: -42.5 dBm Lower Aural: -60.1 dBm Ratio: 17.6 dB
Test Visual: -43.3 dBm Test Aural: -63.2 dBm Ratio: 19.9 dB
Upper Visual: -49.4 dBm Upper Aural: -68.2 dBm Ratio: 18.8 dB
4. NTSC Carrier Level: -13 dBm (after amplifier and filter)
Highest Inband Spurious: -54.9 dBm @ 336.5 MHz
CTB Level: -70.42 dBm
Carrier-to-Noise: 36.8 dB (6 MHz bandwidth)
Total System Response: 6 dB Peak-to-Valley Tilt across system: 2 dB
5. Direct Connection: HDTV Received Power: -53.4 dBm
HDTV BER: 0 0 0
Visual Impairment Comments: No trans. errors - flashing
Aural Impairment Comments: No trans. errors
HDTV Signal (amplified): -22 dBm Noise Power: -53 dBm S/N₁: 31 dB

BER with noise added to reach threshold: 2.23E-06 2.43E-06 2.53E-06
HDTV Signal (amplified): -22 dBm Noise Power: -52.2 dBm S/N₂: 30.2 dB

Margin S/N₁ - S/N₂ : 0.8 dB
6. Signal through House-in-a-Box: HDTV Received Power: -60.3 dBm
HDTV BER: 3.60E-05 1.14E-04 5.41E-05
Visual Comments: No trans. errors
Aural Comments: Hits
HDTV Signal (amplified): -29.5 dBm Noise Power: -58.2 dBm S/N₁: 28.7 dB

BER with noise added to reach threshold: - -
HDTV Signal (amplified): -29.5 dBm Noise Power: -58.2 dBm
S/N₂: 28.7 dB

Margin S/N₁ - S/N₂ : 0 dB

Note: Received levels varied up and down during the tests making it impossible to obtain good readings and margins.

Test Point D4

Date: 95 Aug 4
Tap Location: Aerial

Address of Location: Us #1 & Racetrack, Rockingham
Trunk Cascade: 40 Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -47.1 dBm
Impairment Rating: 3 Comments: light beat
Direct Inband Response: 4.5 dB P-V Delay: 65 ns
2. NTSC Through House-in-a-Box: Level: -52.6 dBm HIAB Loss: 5.5 dB
Impairment Rating: 3 Comments: noise & beat
HIAB Inband Response: 4.5 dB P-V Delay: 60 ns
3. NTSC Carrier levels (Direct):
Lower Visual: -43.2 dBm Lower Aural: -62.7 dBm Ratio: 19.5 dB
Test Visual: -47.4 dBm Test Aural: -69.7 dBm Ratio: 22.3 dB
Upper Visual: -56.3 dBm Upper Aural: -79.9 dBm Ratio: 23.6 dB
4. NTSC Carrier Level: -15.1 dBm (after amplifier and filter)
Highest Inband Spurious: -54 dBm @ 336.48 MHz
CTB Level: -72.2 dBm
Carrier-to-Noise: 36.3 dB (6 MHz bandwidth)
Total System Response: 10 dB Peak-to-Valley Tilt across system: 7 dB
5. Direct Connection: HDTV Received Power: -54.6 dBm
HDTV BER: 5.42E-06 4.65E-06 4.69E-06
Visual Impairment Comments: Transmission errors - Flashing
Aural Impairment Comments: No trans. errors
HDTV Signal (amplified): -21.8 dBm Noise Power: -51.2 dBm S/N₁: 29.4 dB

BER with noise added to reach threshold: 4.43E-06 1.06E-05 4.73E-06
HDTV Signal (amplified): -21.8 dBm Noise Power: -51.2 dBm S/N₂: 29.4 dB

Margin S/N₁ - S/N₂ : 0 dB
6. Signal through House-in-a-Box: HDTV Received Power: -60 dBm
HDTV BER: 1.40E-03 1.41E-03 1.61E-03
Visual Comments: No trans. errors
Aural Comments: No trans. errors
HDTV Signal (amplified): -28.4 dBm Noise Power: -55.8 dBm S/N₁: 27.4 dB

BER with noise added to reach threshold: - - -
HDTV Signal (amplified): -28.4 dBm Noise Power: -55.8 dBm
S/N₂: 27.4 dB

Margin S/N₁ - S/N₂ : 0 dB

Test Point D5

Date: 95 Aug 4

Address of Location: U S 1 & Stroman Rd, Rockingham

Tap Location: Aerial

Trunk Cascade: 32

Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -44.5 dBm
 Impairment Rating: 3.5 Comments: low level beats
 Direct Inband Response: 2.2 dB P-V Delay: 90 ns

2. NTSC Through House-in-a-Box: Level: -50.2 dBm HIAB Loss: 5.7 dB
 Impairment Rating: 3.5 Comments: beats
 HIAB Inband Response: 2.4 dB P-V Delay: 90 ns

3. NTSC Carrier levels (Direct):
 Lower Visual: -42.4 dBm Lower Aural: -60.7 dBm Ratio: 18.3 dB
 Test Visual: -44.9 dBm Test Aural: -64.1 dBm Ratio: 19.2 dB
 Upper Visual: -49.7 dBm Upper Aural: -69.6 dBm Ratio: 19.9 dB

4. NTSC Carrier Level: -12.3 dBm (after amplifier and filter)
 Highest Inband Spurious: >-71.8 dBm @ - MHz
 CTB Level: -70.4 dBm
 Carrier-to-Noise: 40.4 dB (6 MHz bandwidth)
 Total System Response: 4 dB Peak-to-Valley Tilt across system: 10 dB

5. Direct Connection: HDTV Received Power: -51.5 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors - flashing
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -19.1 dBm Noise Power: -51.6 dBm S/N₁: 32.5 dB

 BER with noise added to reach threshold: 9.30E-08 4.10E-08 5.20E-08
 HDTV Signal (amplified): -19.1 dBm Noise Power: -49.8 dBm S/N₂: 30.7 dB

 Margin S/N₁ - S/N₂ : 1.8 dB

6. Signal through House-in-a-Box: HDTV Received Power: -57.2 dBm
 HDTV BER: 0 1.10E-07 0
 Visual Comments: No trans. errors - flashing
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -18.9 dBm Noise Power: -52.1 dBm S/N₁: 33.2 dB

 BER with noise added to reach threshold: 9.28E-07 1.36E-06 1.12E-06
 HDTV Signal (amplified): -18.9 dBm Noise Power: -50.8 dBm
 S/N₂: 31.9 dB

 Margin S/N₁ - S/N₂ : 1.3 dB

APPENDIX 5**Time Warner Cable of Monroe****GENERAL SYSTEM INFORMATION**

Total Subscribers: 16,000	Miles of Plant: 500	Percent Underground: 30
System Bandwidth: 50 - 300 MHz	Frequency Plan: STD	Highest Freq. Used: 300 MHz
Test Channel: 38 (306 - 312 MHz)	Lower Channel: Clear	Upper Channel: none
Trunk Amp Mfr.: Scientific Atlanta	Operating Carrier Levels: 38/36 dBmV.	
Line Extender Mfr.: Scientific Atlanta	Operating Carrier Levels: 47/38 dBmV.	
Trunk Cable: .750"	Cable Manufacturer: Times	Age: 1 - 15 years
Distribution Cable: .500"	Cable Manufacturer: Times	Age: 1 - 15 years
Cable Tap & Passives Mfr.: Scientific Atlanta		
Fibre: AM Link		
Channel 53 HDTV Rx Level: -44 dBm (~31 dB of Margin)		
Rx Site: 19.6 miles from transmitter site		
Tests Performed by: G. Hovland - CableLabs, W. O'Grady - Philips, and Rob Densler - Zenith		
Director: Brian James - CableLabs		

Test Point E1

Date: 95 Aug 21 Address of Location: Headend, Monroe
 Tap Location: HE Test Point Trunk Cascade: 0 Line Extender Cascade: 0

Field Test Results

1. NTSC Direct: Received Signal Level: -29.1 dBm
 Impairment Rating: 4.5 Comments: -
 Direct Inband Response: 0.5 dB P-V Delay: 10 ns

2. NTSC Through House-in-a-Box: Level: -33.3 dBm HIAB Loss: 4.2 dB
 Impairment Rating: 4.5 Comments: -
 HIAB Inband Response: 1.8 dB P-V Delay: 25 ns

3. NTSC Carrier levels (Direct):
 Lower Visual: -28.9 dBm Lower Aural: -45.2 dBm Ratio: 16.3 dB
 Test Visual: -29.2 dBm Test Aural: -46.5 dBm Ratio: 17.3 dB
 Upper Visual: None dBm Upper Aural: None dBm Ratio: N/A dB

4. NTSC Carrier Level: 3.8 dBm (after amplifier and filter)
 Highest Inband Spurious: >-86.5 dBm @ - MHz
 CTB Level: >-86.5 dBm
 Carrier-to-Noise: 43.6 dB (6 MHz bandwidth)
 Total System Response: 1 dB Peak-to-Valley Tilt across system: 3 dB

5. Direct Connection: HDTV Received Power: -35.5 dBm
 HDTV BER: 0 0 0
 Visual Impairment Comments: No trans. errors
 Aural Impairment Comments: No trans. errors
 HDTV Signal (amplified): -2.3 dBm Noise Power: -48.9 dBm S/N₁: 46.6 dB

 BER with noise added to reach threshold: 1.73E-06 1.45E-06 1.56E-06
 HDTV Signal (amplified): -2.3 dBm Noise Power: -31 dBm S/N₂: 28.7 dB

 Margin S/N₁ - S/N₂ : 17.9 dB

6. Signal through House-in-a-Box: HDTV Received Power: -40.4 dBm
 HDTV BER: 0 0 0
 Visual Comments: No trans. errors
 Aural Comments: No trans. errors
 HDTV Signal (amplified): -7.7 dBm Noise Power: -49.5 dBm S/N₁: 41.8 dB

 BER with noise added to reach threshold: 1.19E-06 1.93E-06 1.37E-06
 HDTV Signal (amplified): -7.7 dBm Noise Power: -36.4 dBm S/N₂: 28.7 dB

 Margin S/N₁ - S/N₂ : 13.1 dB